UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,832	01/21/2004	David M. Anderson	200309415-1	4079

22879 7590 03/31/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
COUGHLAN, PETER D	
ART UNIT	**PAPER NUMBER**
2129	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,832	ANDERSON ET AL.	
	Examiner	Art Unit	
	Peter Coughlan	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *A*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. Claims 1-24 are pending in this application.

35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-18, 20-24 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. A genetic algorithm that is nested within a, 'If-Then' loop has no real world application.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete." If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt

the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101.

Phrases such as 'determining costs', 'postponing validation', 'predetermining validation', 'repeating execution' are nothing more than steps of an algorithm of utilizing a genetic algorithm. There needs to be a reason for the existence for such a method.

The invention must be for a practical application and either:

1) specify transforming (physical thing) or

2) have the FINAL RESULT (not the steps) achieve or produce a

useful (specific, substantial, AND credible),

concrete (substantially repeatable/ non-unpredictable), AND

tangible (real world/ non-abstract) result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

A genetic algorithm that is nested within a, 'If-Then' loop is not statutory.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 11, 12, 13, 14, 16, 17, 18, 21, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Dahl (U. S. Patent 6181945, referred to as **Lee**; 'Structured Programming', referred to as **Dahl**)

Claim 1.

Lee teaches determining real costs for a plurality of first value sets represented as a plurality of real chromosomes (**Lee,** C11:19-20; 'Cost' of applicant is equivalent to 'paging cost' of Lee.); determining speculative costs for a plurality of second value sets represented as a plurality of speculative chromosomes, the speculative chromosomes representing value set variations of the first value sets. (**Lee,** C11:21-31; 'The paging cost of these two "children" will also be calculated'.)

Lee does not teach postponing validation of speculative chromosomes by generating subsequent generations of speculative chromosomes and associated speculative costs from parents selected from at least one of the plurality of real chromosomes and the plurality of speculative chromosomes, until a predetermined validation criteria has been satisfied.

Dahl teaches postponing validation of speculative chromosomes by generating subsequent generations of speculative chromosomes and associated speculative costs

from parents selected from at least one of the plurality of real chromosomes and the plurality of speculative chromosomes, until a predetermined validation criteria has been satisfied. (**Dahl,** p19, Figure left side; 'Predetermined validation criteria' of applicant is equivalent to '?' condition (Boolean) statement of Dahl.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Lee by installing an 'If-Then' loop as taught by Dahl to postpone validation of speculative chromosomes by generating subsequent generations of speculative chromosomes and associated speculative costs from parents selected from at least one of the plurality of real chromosomes and the plurality of speculative chromosomes, until a predetermined validation criteria has been satisfied.

For the purpose of utilizing a set of criteria to exit out of the 'If-Then' loop.

Claim 2.

Lee teaches determining real costs for at least one speculative chromosome of the plurality of speculative chromosomes when the predetermined validation criteria has been satisfied. (**Lee,** C11:21-31)

Claim 4.

Lee teaches determining real costs comprising executing a real cost function on the plurality of real chromosomes and the determining speculative costs comprising executing an incremental cost function on the plurality of speculative chromosomes. (**Lee,** C9:66 through C10:15; The same function would be used when computing real

costs or speculative costs due to the fact at some point the speculative would be 'validated' into the real chromosomes.)

Claim 5.

Lee teaches assigning a real cost to the plurality of real chromosomes based on the minimum cost real chromosome in the plurality of real chromosomes and assigning a speculation cost to each generation of speculative chromosomes based on the minimum cost speculative chromosome in a respective generation. (**Lee,** C10:62 through C11:50; In the 'fifth step' the highest costs are replaced with the children. Resulting with Lee converging to a minimum cost goal.)

Claim 11.

Lee teaches executing a real cost function on a plurality of first value sets represented as a plurality of real chromosomes to generate a plurality of real costs for each of the plurality of real chromosomes (**Lee,** C11:19-20; 'Cost' of applicant is equivalent to 'paging cost' of Lee.); executing a genetic algorithm to generate a plurality of speculative chromosomes, the speculative chromosomes representing value set variations of the first value sets (**Lee,** C11:21-31; 'Generate a plurality of speculative chromosomes' of applicant is equivalent to 'children' of Lee.); executing an incremental cost function on the plurality of speculative chromosomes to generate a plurality of speculative costs for each of the plurality of speculative chromosomes. (**Lee,** C11:21-31; 'The paging cost of these two "children" will also be calculated'.)

Lee does not teach repeating execution of the genetic algorithm to produce subsequent generations of speculative chromosomes and repeating execution of the incremental cost function on subsequent generations to provide speculative costs for the subsequent generations of speculative chromosomes, until a predetermined validation criteria has been satisfied.

Dahl teaches repeating execution of the genetic algorithm to produce subsequent generations of speculative chromosomes and repeating execution of the incremental cost function on subsequent generations to provide speculative costs for the subsequent generations of speculative chromosomes, until a predetermined validation criteria has been satisfied. (**Dahl,** p19, Figure left side; 'Predetermined validation criteria' of applicant is equivalent to '?' condition (Boolean) statement of Dahl.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Lee by installing an 'If-Then' loop as taught by Dahl to repeat execution of the genetic algorithm to produce subsequent generations of speculative chromosomes and repeating execution of the incremental cost function on subsequent generations to provide speculative costs for the subsequent generations of speculative chromosomes, until a predetermined validation criteria has been satisfied.

For the purpose of utilizing a set of criteria to exit out of the 'If-Then' loop.

Claim 12.

Lee teaches generating the incremental cost function based on at least one real chromosome and associated real cost. (**Lee,** C9:66 through C10:15; Lee 'cost has to do with the actual cost of paging plans.)

Claim 13.

Lee teaches validating at least one speculative chromosome of the plurality of speculative chromosomes when the predetermined validation criteria has been satisfied (**Lee,** C11:32-36; 'Validating' of applicant is equivalent to 'replaced' by Lee.), the validating at least one speculative chromosome comprising executing the real cost function on the at least one speculative chromosome to generate a real cost associated with at least one speculative chromosome. (**Lee,** C11:21-31)

Claim 14.

Lee teaches repeating the execution of the genetic algorithm to generate a plurality of new speculative chromosomes from the at least one validated speculative chromosome (**Lee,** C11:37-41), and executing a new incremental cost function on the plurality of new speculative chromosomes to generate a plurality of speculative costs for each of the plurality of new speculative chromosomes. (**Lee,** C11:21-31)

Claim 16.

Lee teaches a real cost function that generates real costs for each of a plurality of value sets represented as a plurality of real chromosomes (**Lee,** C11:19-20; 'Cost' of

applicant is equivalent to 'paging cost' of Lee.); a genetic algorithm that generates the plurality of speculative chromosomes from parent chromosomes selected from the real chromosomes (**Lee,** C11:21-31; 'Generate a plurality of speculative chromosomes' of applicant is equivalent to 'children' of Lee.); an incremental cost function that generates a plurality of speculative costs corresponding to a plurality of value set variations of at least one of the plurality of real chromosomes, the plurality of value set variations represented as a plurality of speculative chromosomes. (**Lee,** C11:21-31; 'The paging cost of these two "children" will also be calculated'.)

Lee does not teach a validator that initiates a validation on at least one speculative chromosome upon satisfaction of a predetermined validation criteria.

Dahl teaches a validator that initiates a validation on at least one speculative chromosome upon satisfaction of a predetermined validation criteria.(**Dahl,** p19, Figure left side; 'Predetermined validation criteria' of applicant is equivalent to '?' condition (Boolean) statement of Dahl.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Leeby installing an 'If-Then' loop as taught by Dahl to have a validator that initiates a validation on at least one speculative chromosome upon satisfaction of a predetermined validation criteria.

For the purpose of utilizing a set of criteria to exit out of the 'If-Then' loop.

Lee teaches a validation comprising executing the real cost function on the at least one speculative chromosome to generate a real cost associated with at least one

speculative chromosome. (**Lee,** C11:32-36; 'Validation' of applicant is equivalent to 'replaced' by Lee.)

Claim 17.

Lee teaches a genetic algorithm that generates the plurality of speculative chromosomes from parent chromosomes selected from the real chromosomes. (**Lee,** C11:21-31)

Claim 18.

Lee teaches the genetic algorithm generates at least one subsequent generation of speculative chromosomes employing parents chromosomes selected from at least one of real chromosomes and speculative chromosomes. (**Lee,** C11:21-41; When the speculative chromosome is validated and replace two other 'plans' they are called real, but at one point they were speculative chromosomes. After the first iteration there are now at least two 'speculative chromosomes' in the plan. At one point an 'original' real chromosome and a speculative 'created' chromosome will be used together to generate a new speculative chromosome.)

Claim 21.

Lee teaches means for determining real costs associated with a plurality of real chromosomes representing different value sets associated with a set of parameters (**Lee,** C11:19-20; 'Cost' of applicant is equivalent to 'paging cost' of Lee.); means for

generating a plurality of speculative chromosomes from parent chromosomes selected from at least one of the plurality of speculative chromosomes and the plurality of real chromosomes (**Lee,** C11:21-31; 'Generate a plurality of speculative chromosomes' of applicant is equivalent to 'children' of Lee.); means for determining a speculative cost for a respective speculative chromosome based on a cost of at least one parent chromosome and a difference in value sets of the at least one parent chromosome and the respective speculative chromosome. (**Lee,** C11:21-31; 'The paging cost of these two "children" will also be calculated'.)

Lee does not teach means for postponing validation of the plurality of speculative chromosomes until a predetermined validation criteria has been satisfied.
Dahl teaches means for postponing validation of the plurality of speculative chromosomes until a predetermined validation criteria has been satisfied. (**Dahl,** p19, Figure left side; 'Predetermined validation criteria' of applicant is equivalent to '?' condition (Boolean) statement of Dahl.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Lee by installing an 'If-Then' statement as taught by Dahl to have a means for postponing validation of the plurality of speculative chromosomes until a predetermined validation criteria has been satisfied.

For the purpose of utilizing a set of criteria to exit out of the 'If-Then' loop.

Claim 22.

Lee teaches the means for generating speculative chromosomes being operative to generate additional generations of speculative chromosomes from parents selected from the at least one of the plurality of speculative chromosomes and the plurality of real chromosomes. (**Lee,** C11:21-41; When the speculative chromosome is validated and replace two other 'plans' they are called real, but at one point they were speculative chromosomes. After the first iteration there are now at least two 'speculative chromosomes' in the plan. At one point an 'original' real chromosome and a speculative 'created' chromosome will be used together to generate a new speculative chromosome.)

Claim 24.

Lee teaches validation of the plurality of speculative chromosomes comprising executing the means for determining a real cost on at least one speculative chromosome. (**Lee,** C11:32-36; 'Validation' of applicant is equivalent to 'replaced' by Lee.)

Claim Rejections - 35 USC § 103

4. Claims 3, 6, 7, 9, 10, 15, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee and Dahl, as set forth above, and further in view of Savitch, referred to as **Savitch.** ('Problem Solving With C++')

Claim 3.

Lee and Dahl do not teach assigning a speculation count to each generation of speculative chromosomes, the predetermined validation criteria being a specific speculation count.

Savitch teaches assigning a speculation count to each generation of speculative chromosomes, the predetermined validation criteria being a specific speculation count. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculation count to each generation' and 'predetermined validation criteria' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to combined teachings Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to assigning a speculation count to each generation of speculative chromosomes, the predetermined validation criteria being a specific speculation count.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 6.

The combination of Lee and Dahl do not teach the predetermined validation criteria comprises a speculative cost difference between a generation of speculative chromosomes and a subsequent generation of speculative chromosomes exceeding a predetermined cost change limit.

Savitch teaches the predetermined validation criteria comprises a speculative cost difference between a generation of speculative chromosomes and a subsequent

generation of speculative chromosomes exceeding a predetermined cost change limit. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculative cost difference between a generation of speculative chromosomes and a subsequent generation' and 'predetermined cost change limit' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to have the predetermined validation criteria comprises a speculative cost difference between a generation of speculative chromosomes and a subsequent generation of speculative chromosomes exceeding a predetermined cost change limit.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 7.

The combination of Lee and Dahl do not teach the predetermined validation criteria comprises a cost difference between a generation of speculative chromosomes and the plurality of real chromosomes exceeding a predetermined cost change limit.

Savitch teaches the predetermined validation criteria comprises a cost difference between a generation of speculative chromosomes and the plurality of real chromosomes exceeding a predetermined cost change limit. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Cost difference between a generation of speculative chromosomes and the plurality of real chromosomes' and 'predetermined cost change

limit' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to have the predetermined validation criteria comprises a cost difference between a generation of speculative chromosomes and the plurality of real chromosomes exceeding a predetermined cost change limit.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 9.

The combination of Lee and Dahl do not teach the predetermined validation criteria comprises speculation errors associated with each generation of speculation exceeding a predetermined limit.

Savitch teaches the predetermined validation criteria comprises speculation errors associated with each generation of speculation exceeding a predetermined limit. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculation errors associated with each generation' and 'a predetermined limit ' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by

Savitch to have the predetermined validation criteria comprises speculation errors associated with each generation of speculation exceeding a predetermined limit.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 10.

The combination of Lee and Dahl do not teach the predetermined validation criteria comprises exceeding an execution time limit for generating subsequent generations of speculative chromosomes and generating speculative costs associated with the subsequent generations.

Savitch teaches the predetermined validation criteria comprises exceeding an execution time limit for generating subsequent generations of speculative chromosomes and generating speculative costs associated with the subsequent generations. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Execution time limit' and 'predetermined validation criteria' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to have the predetermined validation criteria comprises exceeding an execution time limit for generating subsequent generations of speculative chromosomes and generating speculative costs associated with the subsequent generations.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 15.

The combination of Lee and Dahl do not teach the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

Savitch teaches the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculation chromosome generation count' and 'predetermined validation criteria' of applicant is equivalent to 'time' and 'limit' of Savitch.), exceeding a predetermined cost change limit between speculative generations (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculative cost difference between a generation of speculative chromosomes and a subsequent generation' and 'predetermined cost change limit' of applicant is equivalent to 'time' and 'limit' of Savitch.) and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Cost difference between a generation of speculative chromosomes and the plurality of real chromosomes' and 'predetermined cost change limit' of applicant is equivalent to 'time'

and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to have teach the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 20.

The combination of Lee and Dahl do not teach the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

Savitch teaches the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculation chromosome generation count' and 'predetermined validation criteria' of applicant is equivalent to 'time' and 'limit' of Savitch.), exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a

speculative generation. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Cost difference between a generation of speculative chromosomes and the plurality of real chromosomes' and 'predetermined cost change limit' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Le and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

For the purpose of separating the requirements of validation for later modification if needed.

Claim 23.

The combination of Lee and Dahl do not teach the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

Savitch teaches the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Speculation chromosome generation count' and 'predetermined

validation criteria' of applicant is equivalent to 'time' and 'limit' of Savitch.), exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation. (**Savitch,** p65:5-13, p76 Display 2.7, p77 Display 2.8; 'Cost difference between a generation of speculative chromosomes and the plurality of real chromosomes' and 'predetermined cost change limit' of applicant is equivalent to 'time' and 'limit' of Savitch.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by using Boolean expressions to determine 'predetermined validation criteria' as taught by Savitch to have the predetermined validation criteria is based on at least one of satisfying a speculative chromosome generation count, exceeding a predetermined cost change limit between speculative generations and exceeding a predetermined cost change limit between the plurality of real chromosomes and a speculative generation.

For the purpose of separating the requirements of validation for later modification if needed.

Claim Rejections - 35 USC § 103

5. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee and Dahl, as set forth above, and further in view of Choo, referred to as **Choo.** (U. S. Patent Publication 20040001021)

Claim 8.

The combination of Lee and Dahl do not teach the predetermined validation criteria comprises speculative costs converging for subsequent generations of speculative chromosomes.

Choo teaches the predetermined validation criteria comprises speculative costs converging for subsequent generations of speculative chromosomes. (**Choo,** ¶0063) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify combined teachings of Lee and Dahl by utilizing the concept of convergence as taught by Choo to have the predetermined validation criteria comprises speculative costs converging for subsequent generations of speculative chromosomes.

For the purpose of taking into account that a genetic algorithm will most likely never reach an optimum value but will only approach it.

Claim 19.

The combination of Lee and Dahl do not teach an optimization tool for optimizing a circuit design, and the plurality of value sets being a plurality of circuit configurations generated by the optimization tool.

Choo teaches an optimization tool for optimizing a circuit design, and the plurality of value sets being a plurality of circuit configurations generated by the optimization tool. (**Choo,** abstract and ¶0077; 'Circuit design' of applicant is equivalent to 'microstrip antenna' design of Choo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to combined teachings of Lee and Dahl by

using a genetic algorithm to design hardware with efficient costs as taught by Choo to have an optimization tool for optimizing a circuit design, and the plurality of value sets being a plurality of circuit configurations generated by the optimization tool.

For the purpose of taking advantage of the genetic algorithm approach to solve this problem when there exists no standard method for designing circuits.

Conclusion

6. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

-U. S. Patent Publication 20040010766: Swope

-U. S. Patent Publication 20030220772: Chiang

-U. S. Patent Publication 20030181210: Shipman

-U. S. Patent Publication 20030177105: Xiao

- A new metric function and harmonic crossover for symmetric and asymmetric traveling salesman problems: Tagawa, K.; Kanzaki, Y.; Okada, D.; Inoue, K.; Haneda, H.;

7. Claims 1-24 are rejected.

Correspondence Information

8. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3687. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 273-8300 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Peter Coughlan

3/28/2006